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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/017,462	12/14/2001	Martin T. Pearson	130109.442	5276

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SEED INTELLECTUAL PROPERTY LAW GROUP PLLC
701 FIFTH AVE
SUITE 6300
SEATTLE, WA 98104-7092

EXAMINER

MARTIN, ANGELA J

ART UNIT

PAPER NUMBER

1745

DATE MAILED: 06/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/017,462

Applicant(s)

PEARSON, MARTIN T.

Examiner

Angela J. Martin

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 March 2006.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-51 is/are pending in the application.
4a) Of the above claim(s) 1-15 and 35-51 is/are withdrawn from consideration.
5) ☒ Claim(s) 25-29 is/are allowed.
6) ☒ Claim(s) 16, 19-21, 24, 30, 32 is/are rejected.
7) ☒ Claim(s) 17, 18, 22, 23, 31, 33 and 34 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is responsive to the Amendment filed on March 17, 2006. The previous Office Action was inadvertently labeled as "Final Rejection", but should have been labeled as a "Non-Final Rejection." However, this rejection is made final for the following reasons of record.

Terminal Disclaimer

1. The terminal disclaimer filed on March 17, 2006 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of U.S. Pat. No. 6,573,682 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 16, 19-21, 24, 30, 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rey, U.S. Pat. No. 3,823,358, in view of Iwase, U.S. Pat. No. 5,625,008 B1, and in further view of Hauer, U.S. Pat. No. 6,214,484 B1.

Rejection of claims 16, 19-21, 24, 30, 32 drawn to a control circuit for a fuel cell system.

Rey teaches a control circuit for a fuel cell system having a fuel cell stack and a battery (abstract), the circuit comprising a series pass element electrically coupleable between a portion of the fuel cell stack and a portion of the battery (col. 1, lines 63-67 and col. 2, lines 1-5; lines 44-58), and a regulating circuit for regulating current through the series pass element (col. 1, lines 63-67 and col. 2, lines 1-19). It teaches a diode for isolating the peaking battery from the fuel cell when the fuel cell voltage exceeds the battery open circuit voltage (col. 2, lines 3-5). It teaches diodes and their connections in the system (col. 3, lines 1-14; col. 5, lines 23-25). It teaches a voltage sensor (col. 3, lines 20-34).

Iwase teaches a battery charging current error integrator, a battery voltage error integrator, a stack current error integrator (col. 5, lines 14-28). It teaches diodes and regulating circuit (col. 5, lines 38-59). It teaches a microprocessor (col. 5, lines 14-28). It teaches analog circuit (col. 4, lines 61-67). It teaches current limits (col. 17, lines 5-49).

Hauer teaches a temperature sensor (col. 2, lines 1-8). It teaches means for applying a signal (col. 3, lines 3-23).

Thus, it would have been obvious at the time the invention was made to insert the teachings of Iwase and Hauer, into the teachings of Rey because Iwase teaches a microprocessor for the regulation and control of the fuel cell system and Hauer teaches a temperature sensor and signal, which would provide additional safety measures.

Allowable Subject Matter

4. Claims 25-29 are allowed.

5. Claims 17, 18, 22, 23, 31, 33, and 34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

6. Applicant's arguments filed March 17, 2006 have been fully considered but they are not persuasive. Applicant argues that the prior art of record does not teach a regulating circuit in response to a greater of a battery charging current error, a battery voltage error and a stack current error. However, Examiner suggests the incorporation of the limitations of either claim 17 or 18 into independent claim 16. Applicant argues that the prior art of record does not teach a regulating circuit to regulate current through the series pass element in proportion to at least a greater of a difference between a battery charging current and a battery charging current limit, a difference between a battery voltage and a battery voltage limit, and a difference between a stack current and a stack current limit. However, Examiner suggests the incorporation of the limitations of either claim 22 or 23 into independent claim 20. Applicant argues that the prior art of record does not teach a series pass regulating means for regulating a flow of stack current through a blocking diode in proportion to the determined greater difference. However, Examiner suggests the incorporation of the limitations of claim 31 into independent claim 30. Applicant argues that the prior art of record does not teach a means for determining a difference between a battery charging current (or battery

voltage or stack current) and a battery charging current limit (or battery voltage limit or stack current limit). However, Examiner suggests the incorporation of the limitations of either claim 33 or 34 into independent claim 32.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela J. Martin whose telephone number is 571-272-1288. The examiner can normally be reached on Monday-Friday from 9:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



PATRICK JOSEPH RYAN
SUPERVISORY PATENT EXAMINER

AJM